



09/888,840

Attorney Docket No. 13780-2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

WANG, et. al.

Serial No.: 09/888,840

Filed: June 25 2001

For: ARYL PHENYLHETEROCYCLYL  
SULFIDE DERIVATES AND  
THEIR USE AS CELL ADHESION-  
INHIBITING ANTI-  
INFLAMMATORY AND IMMUNE  
SUPPRESSIVE AGENTS

) Group Art Unit:

) Examiner: Not Assigned

)

)

)

) Pasadena, California

)

)

)

I HEREBY CERTIFY THAT THIS CORRESPONDENCE  
IS BEING DEPOSITED WITH THE U.S. POSTAL  
SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE  
ADDRESSED TO: COMMISSIONER OF PATENTS AND  
TRADEMARKS, WASHINGTON, D.C. 20231

4-2-02  
(DATE SIGNED)

RECEIVED  
MAY 06 2002  
TECH CENTER 1600/2900

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents  
Washington, D. C. 20231

Sir:

Attached is a Form PTO-1449 listing documents cited in the International Search Report from the corresponding application and believed to be relevant to the above-identified application. It is respectfully requested that these documents be considered by the Examiner and an initialled copy of the form be returned to the undersigned.

It should be noted that the word "prior" has been deleted from the form.

It is believed that this disclosure complies with the requirements of 37 C.F.R. 1.56 and the Manual of Patent Examining Procedures Section 707.05(b). If for some reason



09/88,840

Attorney Docket No. 13780-2

the Examiner considers otherwise, it is respectfully requested that the undersigned be called so that any deficiencies can be promptly remedied.

Some part of the documents may have markings thereon. No significance is meant to be attached to the markings.

No. fee is believed due in connection with this communication. However, if it is determined that a fee is due, the Commissioner is hereby authorized to charge payment of any additional fees, in particular the following fees, associated with this communication, or credit any overpayment to Deposit Account No. 19-2090:

Respectfully submitted,

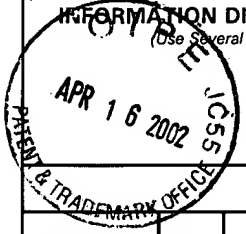
SHELDON & MAK  
a Professional Corporation

Date: 4/1/02

By Kristin C. Hübner

Kristin C. Hübner, Ph.D.  
Reg. No. P-50,139

225 South Lake Avenue  
9th Floor  
Pasadena, CA 91101  
626/796-4000

<b>INFORMATION DISCLOSURE CITATION</b> (Use several sheets if necessary) 	Docket Number 13780-2	Application Number 09/888,840
	Applicant(s) WANG ET AL.	
	Filing Date June 25, 2001	Group Art Unit

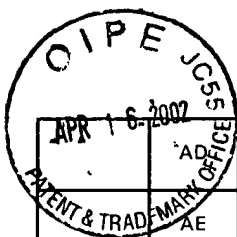
**U.S. PATENT DOCUMENTS**

*EXAMINER INITIAL*	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	4,973,599	11/27/90	Gilman et al.			
	B	5,028,629	07/02/91	Lilly et al.			
	C	5,776,951	07/07/98	Arrowsmith et al.			
	D	5,883,106	03/16/99	Stevens et al.			
	E	5,883,133	03/16/99	Schwark et al.			
	F	5,912,266	06/15/99	Perez			
	G	6,110,992	8/29/2000	Wada et al.			
	H	6,110,922	8/29/2000	Link et al.			
	I	S/N 09/285,477					
	J	S/N 09/285,325					

**FOREIGN PATENT DOCUMENTS**

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	N
	K	DE 2123383	12/2/71	Germany				
	L	GB 2 117 760 A	10/19/93	United Kingdom				
	M	EP 0219756	10/6/86	EPO				
	N	JP 12072766	03/07/2000	Japan				
	O	WO98/13347	04/02/98	PCT				
	P	WO98/39303	9/11/1998	PCT				
	Q	WO99/11258	03/11/1999	PCT				
	R	WO99/20617	4/29/1999	PCT				
	S	WO99/20618	4/29/1999	PCT				
	T	WO99/49856	10/07/1999	PCT				
	U	WO00/15604	3/23/2000	PCT				
	V	WO00/15645	3/23/2000	PCT				
	W	WO00/21920	04/20/200	PCT				
	X	WO00/48989	08/24/2000	PCT				
	Y	WO00/59878	10/12/2000	PCT				
	Z	WO00/60355	10/12/2000	PCT				
	AA	WO01/06984	2/1/2001	PCT				
	AB	WO01/07052	2/1/2001	PCT				
	AC	WO01/27102	4/19/2000	PCT				

**OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)**

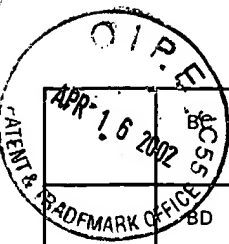


AD	Ali, H. et al., <i>Mechanisms of Inflammation and Leukocyte Activation</i> , Med. Clin. North America (1997) 81:1-28
AE	Bella, J., et al. <i>The Structure of the Two Amino-terminal Domains of Human ICAM-1 Suggests How it Functions as a Rhinovirus Receptor and As An LFA-1 Integrin Ligand</i> . (1998) Proc. Natl. Acad. Sci. USA 95:4140-4145.
AF	Binnerts, M.E., et al. <i>How LFA-1 Binds to Different Ligands</i> . (1999) Immunol Today 20:240-245.
AG	Boschelli, D.H., et al. <i>Inhibition of E-Selectin-, ICAM-1-, and VCAM-1-Mediated Cell Adhesion by Benzo[b]thiophene-, Benzofuran-, Indole-, and Naphthalene-2-Carboxamides: Identification of PD 144795 as an Antiinflammatory Agent</i> . ((1995) J. Med. Chem. 38:4597-4614.
AH	Carlos, T.M., <i>Leukocyte-Endothelial Adhesion Molecules</i> . Blood (1994) 84:2068-2101
AI	Edwards, C.P. et al., <i>Mapping the Intercellular Adhesion Molecule-1 and -2 Binding Site on the Inserted Domain of Leukocyte Function-associated Antigen-1</i> . (1998) J. Biol. Chem. 273:28937-28944.
AJ	Fisher, K.L., et al., <i>Identification of the Binding Site in Intercellular Adhesion Molecule 1 for its Receptor, Leukocyte Function-associated Antigen 1</i> . (1997) Mol. Biol. Cell 8:501-515.
AK	Gadek, T.R., et al., <i>Identification and Characterization of Antagonists of the LFA-1/ICAM-1 Protein-Protein Interaction as Novel Immunomodulatory Agents</i> . 220th ACS National Meeting, Washington, D.C., USA (2000) MEDI 177
AL	Gahmberg, C.G., <i>Leukocyte Adhesion: CD11/CD18 Integrins and Intercellular Adhesion Molecules</i> , Curr. Opin. Cell Biol. (1997) 9:643-650
AM	Gahmberg, C.G., <i>Leukocyte Adhesion: Structure and Function of Human Leukocyte <math>\beta_2</math>-integrins and Their Cellular Ligands</i> . (1997) Eur. J. Biochem. 245:215-232.
AN	Green, J.M., <i>T Cell Receptor Stimulation, But Not CD28 Costimulation, Is Dependent on LFA-1-Mediated Events</i> , Eur. J. Immunology (1994) 24:265-272
AO	Hamilton, G.S., et al., <i>Fluorenylalkanoic and Benzoic Acids as Novel Inhibitors of Cell Adhesion Processes in Leukocytes</i> . (1995) 38:1650-1656.
AP	Henricks, P.A., <i>Pharmacological modulation of cell adhesion molecules</i> , Eur. J. Pharmacol. (1998) 344:1-13
AQ	Huang, C., <i>A Binding Interface on the I Domain of Lymphocyte Function-associated Antigen-1 (LFA-1) Required for Specific Interaction with Intercellular Adhesion Molecule 1 (ICAM-1)</i> , (1995) 270:19008-19016
AR	Huth, J.R., <i>NMR and Mutagenesis Evidence for an I Domain Allosteric Site That Regulates Lymphocyte Function-associated Antigen 1 Ligand Binding</i> . Proc. Natl. Acad. Sci. USA (2000) 97:5231-5236.
AS	Kallen, J., et al., <i>Structural Basis for LFA-1 Inhibition upon Lovastatin Binding to the CD11a I-Domain</i> , J. Mol. Biol. (1999) 292:1-9
AT	Kelly, T.A., <i>Cutting Edge: A Small Molecule Antagonist of LFA-1-Mediated Cell Adhesion</i> , J. Immunol. (1999) 163:5173-5177
AU	Kishimoto, T.K., <i>Integrins, ICAMs and Selectins: Role and Regulation of Adhesion Molecules in Neutrophil Recruitment to Inflammatory Sites</i> , Adv. Pharmacol. (1994) 25:117-169
AV	Landis, R.C. <i>Involvement of The "I" domain of LFA-1 in Selective Binding to Ligands ICAM-1 and ICAM-3</i> , J. Cell Biol. (1994) 126:529-537
AW	Link, J.T., et al., <i>Discovery and SAR of Diarylsulfide Cyclopropylamide LFA-1/ICAM-1 Interaction Antagonists</i> . Bioorg. Med. Chem. Lett. (2001) 11:973-976
AX	Liu, G., <i>Small Molecule Antagonists of the LFA-1/ICAM-1 Interaction as Potential Therapeutic Agents</i> , Expert Opin. Ther. Patents (2001) 11(9) 1383-1393.
AY	Liu, G., et al., <i>Discovery of Novel P-arylthio Cinnamides as Antagonists of Leukocyte Function-associated Antigen-1/intracellular Adhesion Molecule-1 Interaction. 1. Identification of an Additional Binding Pocket Based on an Anilino Diaryl Sulfide Lead</i> . J. Med. Chem. (2000) 43:4025-4040
AZ	Liu, G., et al., <i>Novel P-arylthio Cinnamides as Antagonists of Leukocyte Function-associated Antigen-1/intracellular Adhesion Molecule-1 Interaction. 2. Mechanism of Inhibition and Structure-based Improvement of Pharmaceutical Properties</i> . (2001) J. Med. Chem. 44:1202-1210.
BA	Lu, C., et al., <i>An Isolated, Surface-expressed I Domain of the Integrin <math>\alpha\beta_2</math> Is Sufficient for Strong Adhesive Function When Locked in the Open Conformation with a Disulfide Bond</i> . Proc. Natl. Acad. Sci. USA (2001) 98-2387-2392
BB	Nakano, T., et al., <i>Adxanthromycins A and B, New Inhibitors of ICAM-1/ILFA-1 Mediated Cell Adhesion Molecule from Streptomyces sp NA-148</i> , J. Antibios. (Tokyo) (2000) 53:12-18

TECH CENTER 600/2900

MAY 06 2002

RECEIVED

	BG	Pei, Z., et al., <i>Discovery of Potent Antagonists of Leukocyte Function-associated Antigen-1/intercellular Adhesion Molecule-1 Interaction. 3. Amide (C-ring) Structure-activity Relationship and Improvement of Overall Properties of Arylthio Cinnamides</i> . J. Med. Chem. (2001) In press.
	BD	Qu, A., et al., <i>The Role of the Divalent Cation in the Structure of the I Domain from the CD11a/CD18 Integrin</i> . (1996) Structure 4:931-942.
	BE	Sanfilippo, P.J. <i>Novel Thiazole Based Heterocycles as Inhibitors of LFA-1/ICAM-1 Mediated Cell Adhesion</i> , J. Med. Chem. (1995) 38:1057-1059
	BF	Springer, T.A., <i>Adhesion Receptors of the Immune System</i> , Nature (1990) 346:425-434
	BG	Stanley, P., et al., <i>The I Domain of Integrin LFA-1 interacts with ICAM-1 Domain 1 at Residue Glu-34 But Not Gln-73</i> . (1998) J. Biol. Chem. 273:3358-3362.

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

RECEIVED

MAY 06 2002

TECH CENTER 1600/2900